

جـامعــة الـيـرمــوك
كلية التربية الرياضية
قسم علـوم الرياضــة

التحليل الكينماتيكي لمهارة المشي لدى مجموعة من الأطفال

Kinematical Analyzes of Walking Cycle for some Children

إعداد

دعاء شوكت عوض طشطوش

إشراف

الأستاذ الدكتور زياد درويش الكردي

حقل التخصص - علوم الرياضة

قرار لجنة المناقشة

التحليل الكينماتيكي لمهارة المشي لدى مجموعة من الأطفال

إعداد

دعاء شوكت عوض طشطوش

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الإهداء

الشكر والتقدير

[illegible]

[illegible]

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üƑl ʅŬɛ Ƨ ƥǋʓ

5ϴŭǅǁɛ Ƨ ƥǋʓ

[illegible]

[illegible] **2014**. [illegible]

[illegible] (24) [illegible] (Sony) [illegible] (9 - 6) [illegible] (kinovea) [illegible] (25) [illegible] (SPSS) [illegible]

- [illegible]

[illegible]

[illegible]:

[illegible]: ﴿وَٱللَّهُ خَلَقَ كُلَّ دَآبَّةٖ مِّن مَّآءٖۖ فَمِنۡهُم مَّن يَمۡشِي عَلَىٰ بَطۡنِهِۦ وَمِنۡهُم مَّن يَمۡشِي عَلَىٰ رِجۡلَيۡنِ وَمِنۡهُم مَّن يَمۡشِي عَلَىٰٓ أَرۡبَعٖۚ يَخۡلُقُ ٱللَّهُ مَا يَشَآءُۚ إِنَّ ٱللَّهَ عَلَىٰ كُلِّ شَيۡءٖ قَدِيرٞ ٤٥﴾ [[illegible]: 45].

[illegible]

[illegible] (1991) [illegible]

[illegible]

[illegible]

[illegible] Perry,) [illegible] (1992 [illegible]

[illegible]

[illegible] .(Hamilton& luttgens,2002) [illegible]

[illegible]

-1

-2 (α< 0.05)

-3 (α< 0.05)

.(Perry, 1992)

[illegible] :* [illegible] .

[illegible] :* [illegible] .

[illegible] :* [illegible]

[illegible] .

[illegible]) :(**stride length**) [illegible]

[illegible] ([illegible]) [illegible] ([illegible])

[illegible] ([illegible] 2003).

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* [illegible]

[illegible]

[illegible]

[illegible] 1908 [illegible]

[illegible]

[illegible] (1998 [illegible]) [illegible]

[illegible]

[illegible].

[illegible]

[illegible]

[illegible]

(2003 [illegible]).

[illegible]

[illegible] (1991 [illegible]) [illegible]

[illegible]:

1- [illegible].

2- [illegible]:

[illegible]

[illegible].

[illegible]

[illegible]:

- [illegible].
- [illegible].
- [illegible].
- [illegible].

2. [illegible]

[illegible]

[illegible]:

- [illegible] :(Robert et. all, 1992)

- [illegible].
- [illegible].
- [illegible].
- [illegible].
- [illegible].

- [illegible] :

- [illegible].
- [illegible].
- [illegible].

- [illegible]
- [illegible]
- [illegible]
- [illegible]

ب- [illegible]

[illegible]

3. [illegible]

أ- [illegible]

[illegible] :

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

ب- [illegible]

[illegible] :

- [illegible]

[illegible] 5000-3000 [illegible]

[illegible]

[illegible]

[illegible] 3 [illegible] 2 [illegible]

[illegible] 5 [illegible] 4 [illegible]

[illegible] (Hamilton& luttgens,2002) [illegible]

[illegible]

[illegible]

[illegible]:

.1 [illegible] %62) [illegible]

[illegible]

[illegible]:

[illegible]

[illegible]

[illegible].

[illegible]

[illegible].

3 2

% 38) .2

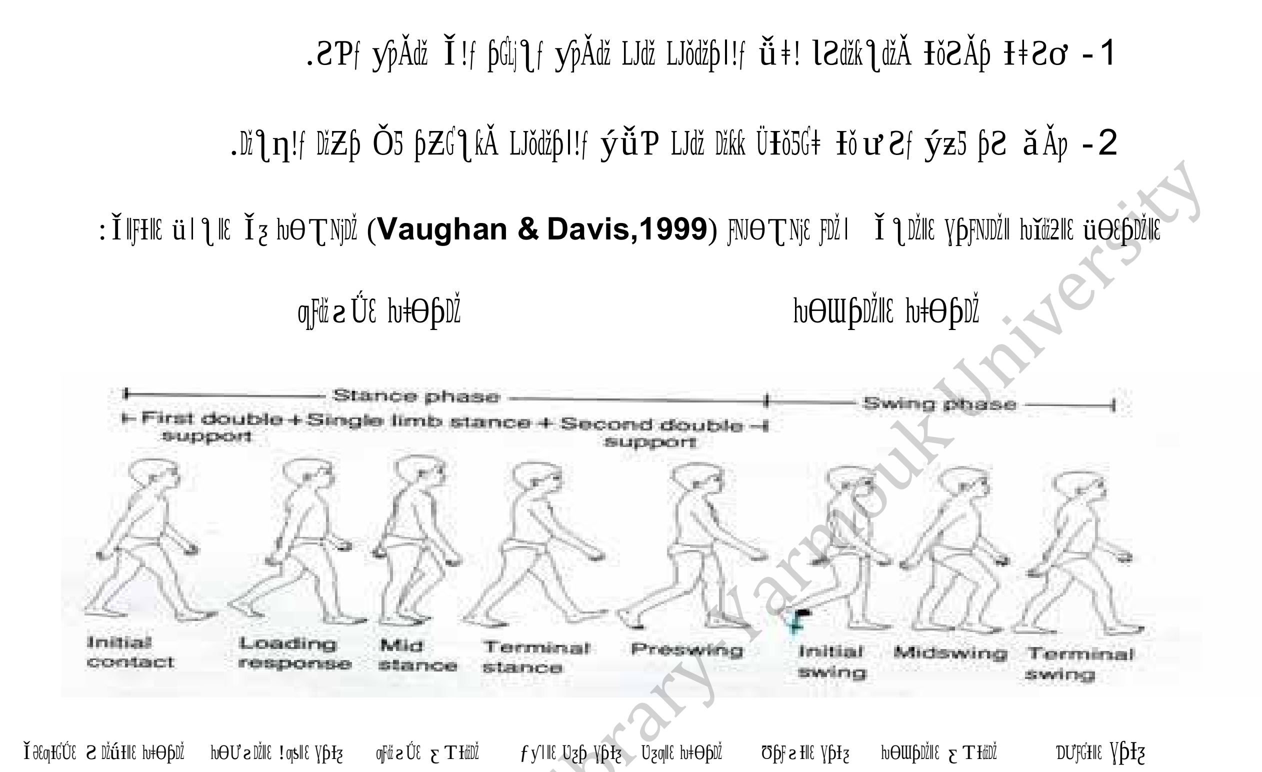
(Dynamics of human gait) (Vaughan & Davis,1999)

.ƧƤƒ ƴƥĂǆ Ĭ!ƒ ƥǤǈƪƒ ƴƥĂǆ ǇǆǇ ǇǑǆǎƥl!ƒ ǚǂ! ƖƧǆǨƪǆĂ ƗǒƧĂƥ ƗǂƧơ -1

.ǅƪƞ!ƒ ǅƵƥ Ŏ5 ƥƵǤƪǨĂ ǇǑǆǎƥl!ƒ ǘǚƤ ǇǆǇ ǅǨǨ ǕƗǒ5Ǥǂ ƗǒƯƧƒ ǘƶ5 ƥƧ ăĂƥ -2

:ĬǁƗǁ ǚlƪǁ Ĭƺ ǁƟƮǊǆ (**Vaughan & Davis,1999**) ǁǊƟƮǊ ǁǆl Ĭƪǆǁ ƴƥǁǊǆǁ ǁĬǆƧǁ ǚƟƐƥǆǁ

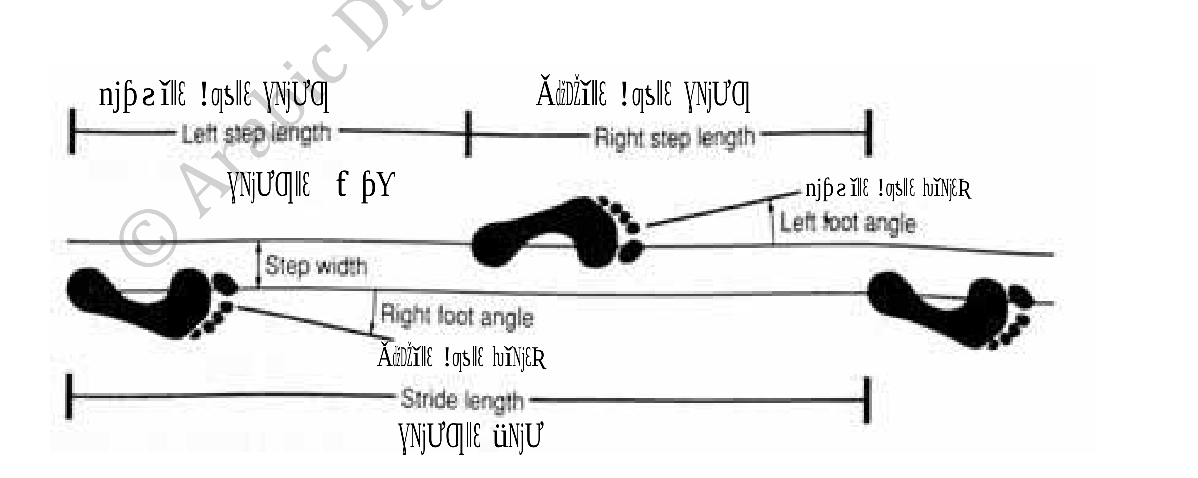
ǁǁǆƨ ǗƐ ǁƗƟƥǆ ǁƟƜƥǆǁ ǁƗƟƥǆ



ĬƟǁǁƗƐ Ƨ ǆǁǁ ǁƗƟƥǆ ǁƟƯƨǆǁ !ǁǁ ƴƥƗƺ ǁǁƨ ǗƐ ƺ ƬƗǆǁ ƒƴǁ Ʊƺƥ ƴƥƗƺ Ʊƺǁǁ ǁƗƟƥǆ Ƣƥƒƨǁ ƴƥƗƺ ǁƟƜƥǆǁ ƺ ƬƗǆǁ ǁƱƒǁ ƴƥƗƺ

Normal gait cycle

ƥǁƬǆǁ **(DYNAMICS OF HUMAN GAIT)**



Normal person footprints

(ƴǋƯǁ ǚǋƯ)

ƥǁƬǆǁ **(DYNAMICS OF HUMAN GAIT)**

[illegible] (Simoneau, 2002) [illegible]

[illegible]:

1. [illegible] %22 [illegible].

2. [illegible].

3. [illegible] 110-80 [illegible] 70 [illegible] 120 [illegible].

[illegible].

WHO

(1)

BMI	
18.5	
24.9 – 18.5	
29.9 – 25	
30	

(WWW.beitybedia.blogspot.com)

[illegible]:

[illegible]

- [illegible] (Beck et.al 1981) [illegible] 37 [illegible] 0.76 * [illegible] 1.04 [illegible].

- (kaneko, et al,1991) [illegible] 57 [illegible].

ƨďżǁ! ǉƥƥơď Ɨőzɳƨď ƘǴǈǴŵ ɣưĂ Ƙ5ƥǋ Ɨʅƒƨƥ ƒĂƨɳƒ (Oberg, et all, 1993) -

"ƗőzőŵƱ ƗơƮ ĂŖ" ǇĂďőǁʅ ƒ ƤƬ (233) ǴǊƒƨƥǀď ƗǉőƵ ǏǁƵ Üýơǵǂ!ƒ ƗőĂƒƨŵ ƾǁzƙ Ʃǉƞ!ƒĂ

ǇŏƙőǂĂư ǇőƙőǁƤ) ǇĂƛơǴŵ!ƒ ǄƥƤƙʅƒ ÜƗőƨďƵ ƘǴƑ5 7 Ǐ!ƒ ǄǌǆőʅǀƙǄƙ ǇǂƨďƒƼ (117) Ă ýɳƨ (116)

Ɨʅƒƨƥ! (Anova) Ă ÜǴőƒĂƨ!ƒ ǉŖǋ ƜƒƨƤƙʅǓ (ƨƙĂőŵď ǂĂ ÜǑƑǴŵƨǌǂ ǴőƒĂƨ ƩǴőǀď Üƨƙď 5.5 ƥǴzŵďŵ

Ƙƒƨőʒƙ!ƒ Ő5 Ƙǉǵǂ ǇĂƛơǴŵ!ƒ ǴǌŏƼ!ƒ ýƮĂƙ Őƙ!ƒ ǊƑǴƙǉ!ƒ ǄǊƒ Ƙǉǵǂ Ă ÜƗʅƒƨƥ!ƒ ƘǴǉőƵ Ǉőŵ ƾĂƨƼ!ƒ

ŎƬď!ƒ ƥǉƵ ƗƮǴƤ ǁƨĂ!ƒ ǅǴǉƛǉƒ ƥǉƵ ǇǴǂ Ƙƒƨőʒƙ!ƒ ǉŖǋ ýƥƒĂ ƗǁőǉƤ Ƙǉǵǂ ƗőơƨďƵ!Ǵŵ ƗƱŵƙƨď!ƒ

Ü ǁƨĂ!ƒ ǅǴǉƛǉǓ Ɨŵʅǉ!Ǵŵ ýǴɳƨ!ƒ ƥǉƵ ýƥƒ ǄőǀƒƘǉǵǂĂ ÜƗő!ǴƵ ƗƵƨʅŵ ŎƬď!ƒ ƥǉƵ Ʃő!Ă ÜƗƑőƱŵ ƗƵƨʅŵ

Ɨǀǁzƙď!ƒ ǊƑǴƙǉ!ƒ ƘƨǌƱƒĂ ÜǅǴʅǉ!ƒ Ǉď ƨŵǂǅ ǅǴǉƛǉƒ Ǆǌ! ǇǴǂ ýǴɳƨ!Ǵ5 Ɨŵǂƨ!ƒ ƨőŏǴzď! ƗŵʅǉǴŵ Ǵďƒ

ƗƵƨʅǁ! Ɨ/Ǆ 1.2 ÜƗƑőƱŵ!ƒ ƗƵƨʅ!ƒ ƥǉƵ Ɨ/Ǆ 0.91 ĭĂǴʅő ŎƬď!ƒ ƗƵƨʅ ƱʅĂƙď Ǉƒ ƗƵƨʅ!Ǵŵ

.Ɨő!Ǵz!ƒ ƗƵƨʅ!ƒ Ő5 Ɨ/Ǆ 1.5 Ă ƗƱʅĂƙď!ƒ

ƩǴőƤ Ǐ!ƒ Ƙ5ƥǋ Ɨʅƒƨƥ (Hausdorff, Rios & Edelberg, 2001) Ǉď ýǂ ăƨɳǅ -

ýɳƨ (52) ǴǊƒƨƥǀď ƗǉőƵ ǏǁƵ ŎƬď!ƒ ƗǁơƨďýǘƤ ƔʅǴǉď!ƒ Ǉďƨ!ƒ ǏǁƵ ýĂƮơǁ! ŎƬď!ƒ ǀƨĂƥ

Ő5 Ő5ƮĂ!ƒ ǋǉǉď!ƒ ǇǴƛơǴŵ!ƒ ǄƥƤƙʅƒ ÜƨǌƬ (12) ǴǊƒƨƥǀď ǀƨƙ5 ýǘƤ ǴďǴƵ (70) ƨďƵ Ő5 ǇǂƨďƒĂ

ǇƒƨƙǓƒĂ ǀĂ!ƒĂ Ǉďƨ!ƒ Ǉőŵ ƗƥǘƵ ƥĂɳĂ ǇĂƛơǴŵ!ƒ ǴǌŏƼ!ƒ ƒĂǁƮĂƙ Őƙ!ƒ ǊƑǴƙǉ!ƒ ǄǊƒ Ƙǉǵǂ Ă ÜǴďǌƙʅƒƨƥ

.ŎƬď!ƒ ǀƨĂƥĂ

ƗőǉǴďƨ!ƒ Ƙƒƨőʒƙ!ƒ Ɨʅƒƨƥ Ǐ!ƒ Ƙ5ƥǋ Ɨʅƒƨƥ ƒĂƨɳǅ (Danion, et al ,2003) ǇĂƛơǴŵ!ƒ -

25 ǄƒƥƤƙʅǴŵ ƯǂƨƼ!ƒ Ɨ!ƒ ǏǁƵ ƒĂƬď ǇőďőǁʅƒǴƤƬƒ ƗőǉǴďƛ ǴǌďƒĂƥ ƗǉőƵ ǏǁƵ ÜǀĂƱƤǁ! ƗőǉǴǂď!ƒĂ

1.26 ≥ Ƙ ≥ .8 Üƨƙď 1.5 ≥ ý ≥ .95) (ý Ƙ) ýƒĂƱǓƒĂ Ƙƒƥƥƨƙ!ƒ Ǉď Ɨ5ǁƙƤď ƗƵĂďɳď

Ǉď Ƙǉǵǂ ƘƒƥƥƨƙƒĂ Üƨƙď 1.5 Ǐ!ƒ ƨƙď 0.95 Ǉőŵ Ǵď ƘƨƮơǉƒ ýƒĂƱǓƒ Ǉƒ ǏǉzďŵÜ(ƨƙƨőǋ

1.26 ... 0.8

.(ý) ... 1 = K ...

- ... (Lockharta, Woldstada & Smitha, 2003) ...

... (7) ... (7) ... (14) ... (28)

... (7) ... (7) ... (14) ... (22 6 + 2.1) ...

... (75 .5+ 6.8) ...

- ... (begg&sparrow,2006) ...

... (12) ... (12) ... (24) ...

... (31.3) ...

... (16.9) ...

- ... (Jordan & challis & newell , 2007) ...

... (12) ...

... (%120 ... %110 ... % 100 ... %90 ... %80)

lĂƱƤ!ƒ þǴƶƕƒĂ ýĂƱ ÜŧƶƖƒĂ!ƒ lĂƱƤ!ƒ þǴƶƕĐĂ ýĂƱ : ŎǋĂ ŎƮǆ!ƒ lƧĂþ Ŏ5 ƘƒƧŏʒƙǆ ŧŏǉǴǆƛ
ƴŏǆɳ Ŏ5 ăþǆ!ƒ ŧǁŏĂƱ ƘǴƱǴƕƙƧƒ þĂɳĂ ƝƑǴƙǈ!ƒ ƘƧǌƲƒ .ƱĂƕǌ!ƒ lĂþĂ ýƶƽ!ƒ þƧ lĂþ ÜŧŏþǴŏƙƵŰƒ
.ƘƒƧŏʒƙǆ!ƒ

ƕƨǴƑƨǁƐ lƑƨƐþǫǁƐ ĂŧƳ ƽĭŧƴŦǁƐ

ŧǌƕǴƮƙǆ ƱǴǀǉ lþƵ ǁǴǉǋ ǇĐ ŧƛơǴƕ!ƒ ăþ! ƠƯƙĐ ŧǌƕǴƮǆ!ƒ ƘǴƖƒƧþǁ! ƯƧƶ!ƒ ýŭƤ Ǉǆ
:Ǵǌǆǋƒýƶ! ŧǀƕǴƖ!ƒ ƘǴƖƒƧþ!ƒĂ ŧŏ!Ǵơ!ƒ ŧƖƒƧþ!ƒ ǇŏƕǴǆ ŧơƯƒĂĂ
.ŎƽƬĂ!ƒ Ɲǌǉǆǆǆǆǆǆǆǆǆǆǆ!ƒ ǅƒþƤƙƖƒ :ŰĂĐ

ƘǴƱƖĂƙǆ!ƒĂ ŧŏƧǴŏƶǆ!ƒ ƘǴƽƒƧơǉŰƒ ƔǴƖơ! (SPSS) ŧŏƑǴƬơŰƒ ǅƨơ!ƒ ǅƒþƤƙƖƒ :ǴŏǉǴƛ
Ă (begg&sparrow,2006) ǇǆýŧǴǌƕƒĂǆǴp Ŏƙ!ƒ ŧƖƒƧþ!ƒ ýŭƤ Ǉǆ ǁ!Ʀ ǇŏƕƙŏĂ ŧŏƕǴƖơ!ƒ
Jordan & challis & , 2007) Ă (Lockharta, Woldstada & Smitha, 2003)Ă
Ü(Danion, et al ,2003) Ü(Oberg, Karsznia & Oberg, 1994)Ă (newell
.(Beck et.al 1981)Ü(Danion, et al ,2003) Ü(kaneko ,et al ,1991)

ŧŏŧŏƙǴǆǉŏŧ!ƒ ƘƒƧŏʒƙǆ!ƒ ŧŏơ Ǉǆ ŧǀƕǴƖ!ƒ ƘǴƖƒƧþ!ƒĂ ŧŏ!Ǵơ!ƒ ŧƖƒƧþ!ƒ ǇŏƕƠƯƒĂ ǋƕǴƮƙ ǁǴǉǋĂ
ýƕp Ǉǆ ƘŏƧɳƒ Ŏƙ!ƒ ŧƖƒƧþ!ƒ Ŏ5 ǁ!Ʀ ƧǌƲŏĂ ŧơɳƧǆ!ƒ ŧǁơƧǆĂ þǴǉƖŰƒ ŧǁơƧǆ Ǵǆŏƕ Ű
.(kaneko ,et al ,1991)

Jordan , 2007) Ǉǆ ýŧ ǴǋƒƧɳƒ Ŏƙ!ƒ ŧƖƒƧþ!ƒĂ ŧŏ!Ǵơ!ƒ ŧƖƒƧþ!ƒ ǇŏƕǌǴƮƙ ǁǴǉǋ :ǴƛǴƛ
ƘǴǁǁƙ!ƒ ŧŏǉƕĂ ŧŏǆŧ ĬǁƵ ŎƮǆ!ƒ ŧƵƧƕ ƧŏƛƙŏƵ ŧ5ƧƶǆĬǁƵ ƘƧƬƙpƒ Ŏƙ!ƒĂ (& challis & newell
.ǴǋþǴƶƕƒĂ lĂƱƤ!ƒ ýĂƱ ŧŏơ Ǉǆ ŎƮǆ!ƒ lƧĂþ ǴǴǉƛƒ ăƧƤŰ lĂƱƤ Ǉǆ ŧþơƙ Ŏƙ!ƒ

Ĭ!ƒ ƘǮƥǸ Ŏķ!ƒĂ Ü(begg & sparrow, 2006) ǈǰǆ ýǂ ǤǸƒƧƞƒ Ŏķ!ƒ ǂƪƒƧƥ!ƒ :ǻǭǁƒƧ

begg &) ǤǸƒƧƞǷ Ŏķ!ƒ ǂƪƒƧƥ!ƒ ýǖƤ ǈǰǆ ǁ!Ʀ ƧǹƱŏĂ ŎƬǆ!ƒ ǂǁƨƧǆ ýǖƤ ǤŏƒĂƨ!ƒ ƩǤŏƿ

.(sparrow, 2006

ǂƪƒƧƥĂ (Beck et. al 1981) ǤǸƒƧƞƒ Ŏķ!ƒ ǂƪƒƧƥ!ƒ ǈǰǁ ǊǁǤƬķ Ĭ!ƒ ǂǮǤƜǗǤǁ :ǻƪǆǤƤ

ŎǮ ýǮƱ!ƒ ýǀƛ ƨǂƧǆ ǂƵƧƪ) ŎǂŏķǤǆǈǰǂ!ƒ ƧŏǮķǆ!ƒĂ ((ýǤǮƱƒ) ǂŏƧǆƺ!ƒ ǂǰǮ!ƒ) ǂǈŏƺ!ƒ ǂŏƨ ǈǰǆ ǂƛƨǤǁ!ƒ

.(ǀĂƱƤ!ƒ ýĂƱĂ ŎƬǆ!ƒ

ŎƬǆ!ƒ ǀƧĂƥ Ƨ Ʈķ Ŏķ!ƒ ǂŏǂŏķǤǆǈǰǂ!ƒ ƘƒƧŏǮķǆ!ƒ ǈǰǆ ƥŏƥƺ!ƒ ƜƒƧƤķƪǤǁ ǂƪƒƧƥ!ƒ ǉƦǸ Ƙƨŏǆķ ƒƦǹǁĂ

:Ŏ!Ǥķ!ƒ ĂƨǈǇ!ƒ Ĭǁƶ ƘǈǤǂ Ŏķ!ƒĂ

- .(ǂƨƞƧǆ!ƒĂ ƥǤǉƪǗƒ) ŎƬǆ!ƒ ýƨƒƧǆ Ƴƪǉ
- .(ǂ /Ǆ) ǂƵĂƱǀǆ!ƒ ǂǮǤƪǆ!ƒ ýǖƤ ýǮƱ!ƒ ýǀƛ ƨǂƧǆ ǂƵƧƪ ýƥƺǆ
- .(Ǆ 10)ǂǈŏƺ!ƒ ƥƒƧǮǄ ǤǹƺƱƿ Ŏķ!ƒ ǂǮǤƪǆ!ƒ
- . ǂƨƞƧǆ!ƒ ǂǁƨƧǆǁ ǤƒƥķǁǗƒ ýǁƿ ǂǁǂƧ!ƒ ǂŏĂƒƨ
- . Ư ƧǕǤǁ ǄƥǀƗ!ƒ ƩǆǖķǈǇǆƨ
- .ǀĂƱƤ!ƒ ýĂƱ
- .ǀĂƱƤ!ƒ ǈǰǆƨ
- .ƘƒĂƱƤ!ƒ ƥƥƶ
- .ýǮƱ ýǂ! ǂǁǆǤǂ ǀƧķǮ!ƒ ǈǰǆƨ

[illegible]:

1. [illegible] ([illegible]) [illegible].
2. [illegible].
3. [illegible]
[illegible].

[illegible]:

1. [illegible]
[illegible].
2. [illegible] kinovea [illegible]
[illegible].
3. [illegible].
4. [illegible].

[illegible]

[illegible]

- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]
- [illegible]

[illegible]:

[illegible].

[illegible]:

[illegible].

[illegible]:

[illegible] 24 [illegible]

(9-6) [illegible]

[illegible] (6) [illegible] (6) [illegible] (6) [illegible]

[illegible] (2) [illegible] (6) [illegible]

: [illegible]

- [illegible].

(2) [illegible]

[illegible]

(24 =[illegible])

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
-0.68	0.17	0.13	1.33	1.60	1.10	[illegible]	[illegible]
-1.39	0.23	14.41	38.15	64.50	19.30	[illegible]	[illegible] ([illegible])

:Ŏǁŏ Ǥdž ʂǁǤʅ!ƒ ýĂþɳ!ƒ ǈdž ƧǌƱŏ

ŎǁǤʅơ!ƒ Ʊʅ Ăǩdž!ƒ Ƹǁ ƚŏơ Ǖǆ (1.60-1.10) ǈŏǁ ƚʅƒƧþ!ƒ ƚǉŏƵ þƒƧǅ ýƒĂƱǅ ƘơĂƒƧǩ .1

Ĭ Ƶ (0.68- Ǖ0.17) ƠƱǁǩ!ƒĂ ǅƒĂǩ!Ǘƒ ǆŏp ƸǁĂ Ǖ(0.13³1.33) ýĂƱ!ƒ Ƨŏʓǩdž!

.ƚǉŏʑ!ƒ þƒƧǅ ƩǉǤɳǩ Ĭ Ƶ ýþǩ ƚ!ĂǁǀdžǆǆŏpŎǋĂ Ŏ!ƒĂǩ!ƒ

Ʊʅ Ăǩdž!ƒ Ƹǁ ƚŏơ Ǖǆʓǂ (64.50-19.30) ǈŏǁ ƚʅƒƧþ!ƒ ƚǉŏƵ þƒƧǅ ǈƒƨĂǅ ƘơĂƒƧǩ .2

Ǖ0.23) ƠƱǁǩ!ƒĂ ǅƒĂǩ!Ǘƒ ǆŏp ƸǁĂ Ǖ(14.41³38.15) ǈƨĂ!ƒ Ƨŏʓǩdž! ŎǁǤʅơ!ƒ

.ƚǉŏʑ!ƒ þƒƧǅ ƩǉǤɳǩ Ĭ Ƶ ýþǩ ƚ!ĂǁǀdžǆŏpŎǋĂ Ŏ!ƒĂǩ!ƒ Ĭ Ƶ (1.39 -

:ǁƨƐþơǁƐ ǀƐþĭƸƚǅ

1- :ǁǂʂƚƨǅǁƐ ǀƐþĭƸƚǅǁƐ

ǅ. (Ƨǩdž!Ǥǁ) ǆʅɳ!ƒ ýĂƱ

Ɣ. (ǆƒƧƸ Ăǁŏǂ!ƒ)ƚǁǩǂ!ƒ

2- (ăơǁƑĭƚƳǗƐ Ĭ ʅǅǁƑǤ ǁʂǂƴƚǅǁƐ) ǁƴǤƑƚǁƐ ǀƐþĭƸƚǅǁƐ

ǅ. (ƚơɳƧdž!ƒĂ þǤǉʅǗƒ) ŎǩǁơƧdž ƚǁʅǉ

Ɣ. (ŎƬdž!ƒ).ýƽƱ!ƒ ýǀǁ ƨǂƧdž ƚƵƧʅ ýþʑdž

Ɯ. (ŎƬdž!ƒ).ƘƒĂƱƤ!ƒ þþƵ

þ. (ŎƬdž!ƒ).ǀĂƱƤ!ƒ ýĂƱ

ǉ. (ŎƬdž!ƒ).ǀĂƱƤ!ƒ ǈdžƨ

Ă. .ƚǁdžǤǂ ǀƧǩƽ!ƒ ǈdžƨ

ƨ. .ƯƧǖ! ǆþǀ!ƒ Ʃdžǘǩ ǈdžƨ

Ɵ. .ýƽƱ!ƒ ǤǌʑƱp Ŏǩ!ƒ ƚƼǤʅdž!ƒ

Ʊ. .ƚơɳƧdž!ƒ ƚǁơƧdž ƚŏƒþǁ ýǁpĂ þǤǉʅǗƒ ƚǁơƧdž ƚŏǤǌǉ þǉƵ ƚǁǂƧ!ƒ ƚŏĂƒƨ

[illegible]:

[illegible] 2014/4/21 [illegible]

[illegible]

1- [illegible].
2- [illegible].
3- [illegible].
4- [illegible].
5- [illegible].
6- [illegible].

[illegible]:

1- [illegible] (Digital) [illegible] 25 [illegible] (SONY).
2- [illegible] (1[illegible]) [illegible] (1[illegible]) [illegible].
3- [illegible] (2 [illegible]) [illegible].
4- [illegible] (50[illegible]) [illegible].

[illegible] :

- [illegible].
- [illegible].
- [illegible] (2 [illegible]) [illegible].
- [illegible]
[illegible].

[illegible] :

[illegible] :

1. [illegible] (SONY) [illegible] 25 [illegible] / [illegible].
2. [illegible]
3. [illegible] 20 [illegible].
4. [illegible] 2.
5. [illegible].
6. [illegible].
7. [illegible] (50 [illegible]) [illegible]
[illegible].
8. [illegible].
9. [illegible] (3 [illegible]).
10. [illegible] (Kinovea).

[illegible]:

[illegible] : [illegible]:

: [illegible] 2014 /5/12 [illegible]

1. [illegible]

[illegible] (1 [illegible])

2. [illegible] 2014/5/5 [illegible]

[illegible].

3. [illegible].

4. [illegible].

5. [illegible] (7) [illegible] 2 [illegible]) [illegible]

(

6. [illegible]

[illegible] .(3 [illegible])

[illegible]:

[illegible]

[illegible]

.2014/5/11 [illegible]

[illegible]:

[illegible]:

1. [illegible].

2. [illegible].

3. [illegible].

[illegible]:

[illegible]

[illegible] (9.5) [illegible] (9.5) [illegible].

[illegible]

[illegible]

[illegible] (6) [illegible]

[illegible]

[illegible]

[illegible] (48) [illegible]

[illegible]:

1- DžþƵ ǁŏƧơƙ ƒƧŏďžǴŧ!ƒ ǇJdž ǴnjǇǴŧdž ŧƱơ! ŧŏƒþƅ ƒ!ƙƮ ƧŏĂ Ĭ!ƒ ŧƱơ! ƒǕǉƙǉǴČ ǊǊdž.

2- Džƙ ƮĂƧŏ ŋdžŏý ǴơĂǓƘ ŧý ƷƺƏý ƅŧǴdžǉǉnjǴ.

3- ƙǌŏƘ ƥƧŋǴƘ ƒ!ƙƖƧŏƔ ĂƒǕƅƶǴþ (Zoom) !ǋŧǴdžďŏƧƒ.

ɛƐǉǊȝƒǁ ǝǌǉǊȝ ƮŋǉŏĬ ǁŧƒǁ ǁǀü ɛǁ

ɛƐǉǊȝƒǁ ǝǌǉǊȝ

[illegible]:

[illegible] (Kinovea) [illegible] (10) [illegible] (1) [illegible] (4 [illegible]).

[illegible]:

[illegible] (SPSS) [illegible]:

1- [illegible] (Mean).

2- [illegible] (Standard Deviation).

3- [illegible].

4- [illegible].

5- [illegible].

6- [illegible] (Anova) [illegible].

7- [illegible].

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] (3) [illegible]

(3) [illegible]

(24=[illegible]) [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
-1.14	0.31	5.40	21.00	31.24	14.33	2([illegible]) [illegible]
-0.49	-0.70	0.16	1.18	1.41	0.85	([illegible]) [illegible]
-1.16	0.29	0.33	1.36	1.96	0.91	([illegible]) [illegible]
-0.45	0.68	1.34	7.64	10.40	5.56	([illegible]) [illegible]
0.34	0.90	0.14	0.45	0.76	0.26	[illegible] ([illegible])
1.64	1.41	0.91	7.71	10.00	7.00	[illegible]
-0.77	-0.12	0.22	1.34	1.79	0.96	([illegible]) [illegible]
-0.94	-0.40	4.96	136.92	144.00	127.00	[illegible]
-	-	0	67	67%	67%	[illegible]
-	-	0	33	33%	33%	[illegible]

ÜłdžŏpǏŽƒĂ łdžŏp ýpƊ ǈŏǌ ƘơĂƒƧƙ Ŏƙ!ƒĂ łŏǂŏƙǴdžǈŏǂ!ƒ Ƙƒƨŏʒƙdž!ƒ Ǆŏp ýĂþƞ!ƒ ƒƦǋ ǈŏǌŏ

ƘơĂƒƧƙ łŏơ Ƙƒƨŏʒƙdž!ƒ ǁƙ! ƠƱƙ!ƒĂ ǤƒĂƙ!Ǜƒ ǄŏpĂ ǐƧǴŏƶdž!ƒ ƻƒƧơǉǛƒĂ ŎǌǴƪơ!ƒ ƱƪĂ!ƒĂ

ŎǌǴƪơ!ƒ ƱƪĂƙdž!ƒ ƺǌ łŏơ Ü(31.24-14.33) ǈŏǌ łƪƒƨþ!ƒ łǉŏƵ þƒƨƽǕ łƙǂ!ƒ ƘƒƧƬƋdž

ǤƒĂƙ!Ǜƒ Ǆŏp ƘʒǌĂ ÜŎ!ƒĂƙ!ƒ ǏŽ (5.40³21.00) łƙǂ!ƒ ƧƬƋdž Ƨŏʒƙdž! ǐƧǴŏƶdž!ƒ ƻƒƧơǉǛƒĂ

.łǉŏƶ!ƒ þƒƨƽƊ ƩǉǴƞƙ ǏŽ ýþƙ ł!ĂǌƖdž Ǆŏp ŎǋĂ Ŏ!ƒĂƙ!ƒ ǏŽ (1.14- Ü0.31) ƠƱƙ!ƒĂ

ƺǌ łŏơ Ü(1.41-0.85) ǈŏǌ łƪƒƨþ!ƒ łǉŏƵ þƒƨƽǕ ƖĂƱƤ!ƒ ýĂƱ ƘǴƱƪĂƙdž ƘơĂƒƧƙĂ

ƘʒǌĂ ÜŎ!ƒĂƙ!ƒ ǏŽ (0.16³1.18) ƖĂƱƤ!ƒ ýĂƱ Ƨŏʒƙdž! ǐƧǴŏƶdž!ƒ ƻƒƧơǉǛƒĂ ŎǌǴƪơ!ƒ ƱƪĂƙdž!ƒ

.łǉŏƶ!ƒ þƒƨƽƊ ƩǉǴƞƙ ǏŽ ýþƙ ł!ĂǌƖdž Ǆŏp ŎǋĂ Ŏ!ƒĂƙ!ƒ ǏŽ (0.49 Ü0.70) ƠƱƙ!ƒĂ ǤƒĂƙ!Ǜƒ Ǆŏp

(Beck et.al, 1981) łƪƒƨþ ƴdž ƖĂƱƤ!ƒ ýĂƱ łŏơ ǈdž łŏ!Ǵơ!ƒ łƪƒƨþ!ƒ ǊƑǴƙǉ ƘǌƧƙpƒ

ǊƑǴƙǉ!ƒ ǁƙ ƔǌƪłƛơǴǌ!ƒ ƘƨŽĂ Ü ýƽƱ!ƒ ýĂƱ Ã 0.76 = ýƽƱ!ƒ ƖĂƱƤ ýĂƱ ǈƊ Ǐ!ƒ ƧǴƬƊ łŏơ

ǈǴƪǉǛƒ ǈƊ łŏdžƶ!ƒ łǴơǌǛƒ ƘƧǴƬƊĂ Ǵdžǂ .ǴǋþǴƶǌƊĂ ƖĂƱƤ!ƒ ýĂƱ ǏŽ ǄƪƞƑ łƙǂ ƧƬƋdž ƧŏƛƙǏ!ƒ

.ƖĂƱƤ (5000 -3000) ǈdž ǴǌŏƧƖƙ ǄĂŏ!ƒ Ŏƽ ƴƱƖŏ

ƺǌ łŏơ Ü ł (1.96-0.91) ǈŏǌ łƪƒƨþ!ƒ łǉŏƵ þƒƨƽǕ ƖĂƱƤ!ƒ ǈdžƨ Ǆŏp ƘơĂƒƧƙĂ Ǵdžǂ

ÜŎ!ƒĂƙ!ƒ ǏŽ ł (0.33³1.36) ƖĂƱƤ!ƒ ǈdžƨ Ƨŏʒƙdž! ǐƧǴŏƶdž!ƒ ƻƒƧơǉǛƒĂ ŎǌǴƪơ!ƒ ƱƪĂƙdž!ƒ

þƒƨƽƊ ƩǉǴƞƙ ǏŽ ýþƙ ł!ĂǌƖdž Ǆŏp ŎǋĂ Ŏ!ƒĂƙ!ƒ ǏŽ (1.16- Ü0.29) ƠƱƙ!ƒĂ ǤƒĂƙ!Ǜƒ Ǆŏp ƘʒǌĂ

.łǉŏƶ!ƒ

ƺǌ łŏơ Ü(10.40-5.56) ǈŏǌ ƘơĂƒƧƙ łƪƒƨþ!ƒ łǉŏƵ þƒƨƽǕ łǌdžǴǂ!ƒ ƖƧƙƽ!ƒ ǈdžƨ ǄŏpĂ

ƘʒǌĂ ÜŎ!ƒĂƙ!ƒ ǏŽ(1.34³7.64) łǌdžǴǂ!ƒ ƖƧƙƽ!ƒ Ƨŏʒƙdž! ǐƧǴŏƶdž!ƒ ƻƒƧơǉǛƒĂ ŎǌǴƪơ!ƒ ƱƪĂƙdž!ƒ

.łǉŏƶ!ƒ þƒƨƽƊ ƩǉǴƞƙ ǏŽ ýþƙ ł!ĂǌƖdž Ǆŏp ŎǋĂ Ŏ!ƒĂƙ!ƒ ǏŽ (0.45- Ü0.68) ƠƱƙ!ƒĂ ǤƒĂƙ!Ǜƒ Ǆŏp

(0.76-0.26)

(0.34 0.90) (0.14 0.45)

(10.00-7.00)

(0.91 7.71)

(1.64 1.41)

(Simoneau, 2002)

(60) (70)

(1.79-0.96)

(0.22 1.34)

(0.77- 0.12-)

Oberg, et all, 1994

1.5 1.2

[illegible] (1.04) [illegible] (Beck et.al 1981) [illegible]

-6) [illegible] (Beck et.al 1981) [illegible]

Oberg,) [illegible] (9 -6) [illegible] (12

[illegible] (et all , 1994

[illegible]

[illegible] (144 -127) [illegible]

[illegible] (4.96 ³ 136.92) [illegible]

[illegible] (0.94- Ü0.40 -) [illegible]

[illegible]

[illegible] (Begg& Sparrow, 2006) [illegible]

[illegible]

[illegible] (Begg& Sparrow, 2006) [illegible]

[illegible]

[illegible]

[illegible] Ü%67 [illegible]

[illegible] (0 ³ 67) [illegible]

[illegible] Ü%33 [illegible]

[illegible] (0 ³ 33) [illegible]

[illegible]

[illegible] (Hamilton& Luttgens, 2002) [illegible]

[illegible] %62 [illegible]

[illegible] %33 [illegible] %67 [illegible] % 38

[illegible]

[illegible] (Hamilton& Luttgens, 2002) [illegible].

[illegible]

[illegible] ([illegible]) [illegible]

[illegible]

[illegible]

[illegible]

.(kaneko ,et al ,1991)

[illegible] (**0.05**= **α**) [illegible]

[illegible]

[illegible] (Pearson Correlation)

.[illegible] (4) [illegible]

(4) [illegible]

[illegible] (Pearson Correlation) [illegible]

.[illegible].

[illegible]		[illegible]
-0.20	[illegible]	[illegible]
0.36	[illegible]	
0.15	[illegible]	[illegible]
0.49	[illegible]	
0.08	[illegible]	[illegible]
0.72	[illegible]	
-0.24	[illegible]	[illegible]
0.26	[illegible]	
-0.01	[illegible]	[illegible]
0.97	[illegible]	
-0.08	[illegible]	[illegible]
0.71	[illegible]	
-0.48	[illegible]	[illegible]
0.02	[illegible]	

(0.05= α) [illegible]

[illegible]

[illegible]

.[illegible]

ŧŏĂƒƨ) ǈĴŏƧŏ ʒƙdž ǈĴŏƞ (0.05= α) ăĂƙʅdž ƥǉƵ ŧŏƑƓȚơƍ ŧ!Ǖƥ ƘƒƦ ŧŏʅǂƵ ŧƿǚƵ ƥĂƞĂĂ

(0.48-) ƱƓƙƧǕƒ ýdžƓƺdž ŧdžŏƿ Ƙʒƞ ŧŏơ Ü(Džʅƞ!ƒ ŧƙǂ ƧƬƋdžĂ ƥƓǉʅǕƒ ŧơƧdž ŧŏƓnjǉ Ŏƽ ŧƞǂƧ!ƒ

.ŧŏƑƓȚơƍ ŧ!ƒƥĂ ŧƞ!Ɠʅ ŧdžŏƿ ŎNjĂ

ƇƒƥƒǈĴdž ƻĂƤ!ƒ ĭƒ ŧŏʅƽǉ!ƒ ŧ!Ɠơ!ƒĂ (ýƓƽƱƒ) Ƨdžƺ!ƒ ƧŏƛƋƙ Ĭ!ƒ ǁ!Ʀ Ɣƞʅ ŧƛơƓƞ!ƒ Ăƨƺƙ ŧŏơ

ƓNjƒƧƞ ŎƙNJ!ƒ ŧʅƒƧƥ!ƒ ǋƑƓƙǉ ƴdž ƾƽƙƙ ƓnjǉƒƓdžǂ ǈĴŏƧƞƙƤdž!ƒ ƥǉƵ ŧƞƧƞƙ!ƒ ƇƒƥƒƇƓǉƛƒ ǁƓƙƧǕƒĂ ŧƞƧƞƙ!ƒ

.(jingxian &youlian, 2000) Ü(kaneko ,et al ,1991) ǈĴdž ýǂ

ŧŏĂƒƨ ĬǁƵ ǉƧŏƛƋƙĂ Džʅƞ!ƒ ŧƙǂ ƧƬƋdž Ĭ!ƒ ǁ!Ʀ Ɣƞʅ ŧƛơƓƞ!ƒ Ƙƨƺƽ ŧŏǉƓƛ!ƒ ŧƞŏƙǉ! ŧƞʅǉ!Ɠƞ Ɠdžƒ

.ŧƞǂƧ!ƒ

ǀƐƥĭƩŧƊǁƐ Ĭʒ (**0.05**= **α**) ƕǁǗơǁƐ njNjŧƨƊ ơdžƳ ƕĭƌƑƬƟ ƕǁǗơ ǀƐƤ ƼNjƥʒ ƿƑǉǉ üǉ :ƘǁƑƙǁƐ üƐƊƨǁƐ

Ý(ƒ ƻƢǉƊǁƐNj ĬyĭƓƯǁƐNj ƯƻŧƥƊǁƐ) !ƨǁǁƐ ƕǂŧǀ ƥʅƊǁ ƒyƓŧ ƕĭǀĭƑƊĭǀǁƐ

ĬǁƵ (ANOVA) ĭƥƓơǕƒ ǈĴƓƞƙ!ƒ ýŏǁơƙ ƾŏƞƱƙ Džƙ ŧ!Ɠƛ!ƒ ýƋƓʅƙ!ƒ ŧơȚ ǈĴdž ƾǀơƙ!Ă

ýĂƒƥƞ ƠưĂƙĂ Ü(Ư ƽƤǉdž!ƒĂ Ŏƺŏƞʊ!ƒĂ yƽƙƧdž!ƒ) Džʅƞ!ƒ ŧƙǂ ƧƬƋdž! ƓƺƞƙƧ ŧŏǂŏƙƓdžǉŏǂ!ƒ ƘƒƧŏʒƙdž!ƒ

.ǋƑƓƙǉ!ƒ (6 - 5)

(5) [illegible]

[illegible] (ANOVA) [illegible]

([illegible])

[illegible]	F	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
0.29	1.33	0.11	1.22	8	[illegible]	[illegible]
		0.15	1.21	8	[illegible]	
		0.20	1.10	8	[illegible]	
0.28	1.35	0.42	1.39	8	[illegible]	[illegible]
		0.27	1.21	8	[illegible]	
		0.28	1.47	8	[illegible]	
0.31	1.26	1.43	7.57	8	[illegible]	[illegible]
		0.83	7.16	8	[illegible]	
		1.59	8.20	8	[illegible]	
0.75	0.29	0.16	0.47	8	[illegible]	[illegible]
		0.14	0.46	8	[illegible]	
		0.13	0.42	8	[illegible]	
0.07	3.11	0.64	7.88	8	[illegible]	[illegible]
		0.35	7.13	8	[illegible]	
		1.25	8.13	8	[illegible]	
0.35	1.10	0.26	1.36	8	[illegible]	[illegible]
		0.16	1.42	8	[illegible]	
		0.23	1.26	8	[illegible]	
0.02	4.90	4.05	138.13	8	[illegible]	[illegible]
		3.82	139.50	8	[illegible]	
		4.91	133.13	8	[illegible]	

[illegible] (5) [illegible]

[illegible] (α =0.05) [illegible]

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ƥǀƵ ƗŏƑǴƮơƍ Ɨ!Ǔƥ Ƙƒƙ ƾĂƧ5 ƥŋĂŏ NJǀƒĂ ÜǿŏƑǴƮơƍ Ɨ!ƒƥ Ƨŏƺ (F) Ďžŏƿ ƘǀǴǂ ƚŏơ Ü(Ʊ ƽƤǀđž!ƒĂ

Ďž˥ŋ!ƒ Ɨǁƙǂ ƧƬƋđž! ǿƶǁƙ ƥǴǀ˥Ǔƒ ƗǁơƧđž ƗŏǴnjǀ Ŏ5 Ɨǁǂ Ƨ!ƒ ƗŏĂƒƨ Ƨŏƺƙđž Ŏ5 (0.05= α) Ɨ!Ǔƥ!ƒ ăĂƙ˥đž

ǀƘNj ƧƥǴƮđž Ɨ5Ƨƶđž! ÜǿŏƑǴƮơƍ Ɨ!ƒƥ (4.71) (F) Ɨđžŏƿ Ƙƺǁǁ ƚŏơ Ü(Ʊ ƽƤǀđž!ƒĂ Ŏƶŏǁƌ!ƒĂ ÿƽƙƨđž!ƒ)

. ǁ !Ƙ ƠƲĂŏ (6) ýĂƥŋ ÜƗŏƥƶǁ!ƒ ƘǴǀƧǴlđž!! (Scheffe) NJŏƽŏƬ ƗlŏƧƌ ƾŏǁƌƙ Ďžƙ ƾĂƧƽ!ƒ

(6) üNjƍǁǁ

ƒyǴƗ ƍƑđžƨ ǗƐ ǁǂƟƥĎž ǁǐƑNJđž Ǐƺ ǁǴlƥǁƐ ǁǐNjƐƘ ƥǐƸƗĎž Ăǂ Y ǁǐƍyǴǁƐ lƑđžƥƑƽĎžǂǁ (**Scheffe**) LJǐƧǐ˥ ǁƽǐƥƲ 5ǐǴƲƗ ƛəƑƗđž

(ƒ ƧƍǁđžĎžǁƐNj ǏyǐǴƲǁƐNj ƲƧƗƥĎžǁƐ) ! ƨ ǁǁƐ ǁǂƗ l ǁ ƥ˥ƊĎžǁƐ

ƲƧƗƥĎž	ǏyǐǴƲ	ƒ ƧƍǁđžĎž	ǏǴƑƨƟǁƐ Ʊ ƨ NjƗĎžǁƐ	ǁǂƗ l ǁƐ ƥ˥ƊĎž
5.00*	-1.37		138.13	Ʊ ƽƤǀđž
6.37*			139.50	Ŏƶŏǁƌ
			133.13	ÿƽƙƧđž

(0.05= **α**) ǁǁǗƍǁƐ njNjƗƨĎž ƍđžY ƒǐəƑƬƟǁ ǁǁƐƍ *

Ü Ʊ ƽƤǀđž) Ɨǁƙǂ!ƒ ƧƬƋđž ăĂƙ˥đž LJǁŏǁ ƘǀǴǂ ƾĂƧƽ!ƒ ƧƥǴƮđž LJĎ ƾǁǴ˥!ƒ ýĂƥŋ!ƒ LJđž ƧnjƲŏ

ƌ˥Ăƙđž!ƒ ƺǁǁ ǴđžǀŏǁÜ(138.13) ŎǁǴ˥ơ ƌ˥Ăƙđžǁ (Ʊ ƽƤǀđž) Ɨǁƙǂ!ƒ ƧƬƋđž ăĂƙ˥đž Ơ!ǴƮ! (ÿƽƙƧđž

ÜŎƶŏǁƌ) Ɨǁƙǂ!ƒ ƧƬƋđž ăĂƙ˥đž LJŏǁĂ Ü(133.13) (ÿƽƙƧđž) Ďž˥ŋ!ƒ Ɨǁƙǂ ƧƬƋđž ăĂƙ˥đž! ŎǁǴ˥ơ!ƒ

.(139.05) ŎǁǴ˥ơ ƌ˥Ăƙđžǁ (Ŏƶŏǁƌ) Ɨǁƙǂ!ƒ ƧƬƋđž ăĂƙ˥đž Ơ!ǴƮ! (ÿƽƙƧđž

ŎƬđž!ƒ ƇǴǀƛƒ Ɨǁǂ Ƨ!ƒ ýƮƽđž Ŏ5 ƇǴǀƛǀǗƒ LJĂǁǁlŏ ýǴƽƌǓƒ LJƒ Ǐ!ƒ ǁ !Ƙ Ɣǁ˥ ƗƛơǴǁ!ƒ Ăƨƶƙ Ă

ƠŋƧƙ!ƒ ƗǁơƧđž Ǐ!ƒ ƥǴǀ˥Ǔƒ ƗǁơƧđž LJđž ýǴlƙǀǓƒ ƥǀƵ (Ʃ ĂŏǁŏƤƒ) ýơǴǂ!ƒ ýƮƽđž ƧƙĂ LJĎ ƘƧnjƲĎĂ

begg &) ýǁƿ LJđž ƘŏƧŋƒ Ŏƙ!ƒ Ɨ˥ƒƧƥ!ƒ yđž Ɨ˥ƒƧƥ!ƒ ǀƘNj ƝƑǴƙǀ ƘlƽƙƒĂ .ýǴƽƌǓƒ ƥǀƵ Ƨƛǂƒ

.(sparrow, 2006

[illegible]

[illegible]

-1 [illegible] (0.05= α) [illegible]

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-2 [illegible] (0.05= α) [illegible]

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-3 [illegible] (0.05= α) [illegible]

[illegible]

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-4 [illegible] (0.05= α) [illegible]

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www.beitybedia.blogspot.com

ثانياً: المراجع الأجنبية

- Beck, R. J., TP Anderiachi, K. N. TP Ander Former, Jo Galante, (1981). Journal of boro joint, Vol 63.
- Begg, R.K, & Sparrow W.A. (2006). Aging effects on Knee and ankle angles during major events and phases of the gait cycle. Journal of medical Engineering and Technology. Nov-Dec; 30 (6): 382-9.
- Christopher, L Vaughan & Brian, L Davis. (1999). Dynamics of human gait . Mills Litho, Cape Town.
- Danion f , Varraine E, Bonnard M ,Pailhous J.(2003). Stride Variability in human gait: the effect of stride frequency and stride length. Gait posture.Aug; 18 (1):69-77.
- Hamilton,N.,&Luttens, K.,2002. Kinesiology, Scientific Basis of Human Motion, 10th ed.Madison, WI,Brown &Benchmark.Chapter 19, pp. 467-494.
- Hausdorff, Jeffrey M., Rios, Dean A., & Edelberg, Helen K. (2001). Gait variability and fall risk in community-living older adults: A 1-year prospective study. Archives of Physical Medicine and Rehabilitation. Vol. 82, Issue 8, pages 1050-1056.

- Jordan K, Challis JH, Newell KM.(2007). Walking speed in fluencies on gait cycle variability.Gait posture. Jun;26 (1) : 128-34.Epub 2006 Sep 18.
- Kanekp M , Morimotoy, Kimura M, Fuchimoto K, Fuchimoto T. (1991). AKinematic analysis of walking and physical fitness testing in elderly women..Can J sport Sci. sep; 16(3):223-8.
- Lockhart, Thurmone, Woldstad, Jeffry, & Smith, James L. (2003). Effects of age-related gait changes on the biomechanics of slips and falls. ERGONOMICS, Vol. 46, No. 12, 1136-1160, Taylor & Francis Group.
- Oberg T, Karsznia A, & Oberg K. (1993). Basic gait parameters: reference data for normal subjects, 10-79 years of age. J Rehabil Res Dev. 30 (2): 210-23.
- Perry, Jacquelin. (1992). Gait analysis: normal and pathological function. http://books.google.com/. SLACK Incorporated. Page 3.
- Robert Carola , John P. Harley , charles Rnobak, 1992, Human Anatony, Mcgraw- Hill,inc.
- Simoneau G.G.,2002. Kinesiology of Walking. In: Neumann, D.A.(ed). Kinesiology of the Musculoskeletal System : Foundations for Physical Rehabilitation. St. Louis, Missouri: Mosby.pp.523-569.

الملاحق -

ملحق رقم (1)

كتاب رسمي من عميد كلية التربية الرياضية الى مدير المدرسة

جامعة اليرموك
YARMOUK UNIVERSITY
كلية التربية الرياضية
Faculty of Physical Education

الرقم: ك.ت.ر/ ٩٠٠/ ٥٠ / ٤٠٦
التاريخ: ٠٠/ جمادى الآخرة /1435
الموافق: ٠٠/ نيسان /2014

الأستاذ الدكتور مدير المدرسة النموذجية المحترم

السلام عليكم ورحمة الله وبركاته،،،

تقوم الطالبة دعاء شوكت عوض طشطوش إحدى طالبات كلية التربية الرياضية في جامعة اليرموك ورقمها الجامعي (2011381001) بإعداد رسالة ماجستير في التربية الرياضية وعنوانها:

"التحليل الكينماتيكي لمهارة المشي لدى مجموعة من الأطفال"

أرجو التكرم بالموافقة والإيعاز لمن يلزم لتسهيل مهمة الطالبة المذكورة.

وتفضلوا بقبول فائق الاحترام،،،

عميد كلية التربية الرياضية
أ.د. فايــز أبو عريضــة

مديرة الروضة والصفوف الثلاث الأول
مديرة المرحلة الأساسية الأولى
لتسهيل مهمة الطالبة (المعلمين) (العلماء).
٢٠١٤/٤/٢٣

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http://www.yu.edu.jo/pe

ملحق رقم (2)

موافقة اولياء الامور

السيد ولي أمر الطالب ....تقوم الباحثة دعاء شوكت طشطوش
بدراسة (أطروحة الماجستير) بعنوان التحليل الكينماتيكي لجهاز المشي لدى مجموعة من الأطفال .
أرجو التكرم بالموافقة على اشتراك ابنتكم ضمن عينة الدراسة .

أوافـــق   لا أوافـــق   توقيـــع ولـــي

الأمر..

وتفضلوا بقبول فائق الاحترام .

ملحق رقم 3

استمارة تسجيل البيانات الاولية للطلاب

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ملحق رقم 4

استمارة تسجيل قيم المتغيرات الكينماتيكية

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Abstract

Kinematical Analyzes of Walking Cycle for some Children

Tashtoush, Doaa Shaukat: Kinematical Analyzes of Walking Cycle for some Children, Master Thesis, Yarmouk University, 2014
(Supervisor. Prof Dr. Ziad Kurdi)

This study aims to identify the values of some Kinematical variables during walking cycle for group of children, The researcher used the descriptive approach, due to its suitability to the nature of this study, of model school students - Yarmouk University, of sample of (24) students were photographed by camera type (Sony) with frequency (25) frames/ sec, The kinematic analysis program (kinovea) was used; to find the values of Kinematical variables, the data by processed by statistical packages (SPSS); to extract averages, standard deviations and Pearson correlation coefficient for the variables of the study. The results has shown there is an opposite relationship between the angle of the knee and body mass index, and a difference between the two walking stages with the children of the study sample, also there is no statistically significant differences between BMI and Kinematical variables except the (angle of the knee) variable, the study recommend giving the body mass index a particular importance in the skill of walking on a big sample of children.

Key words: Walking, Kinetic Analysis, Kinematic.